Agenda

I. Introductions (30 minutes)
- Welcome
- Introductions of CRA and its role
- Role of the IRP Stakeholder Advisory Group
- Kick-off meeting roles & Stakeholder feedback process
- Timeline and cadence of future meetings

II. 2020 Modified IRP (1.5 hours)
- Results of the DSM Rapid Assessment
- Model selection and Stakeholder Participation
- Review key inputs from the Commission order
- Results and risk assessment
- Questions

III. 2021 & 2022 IRP Updates (30 minutes)
- Stakeholder process for 2021-2022 DESC IRP Updates, pace and timing of meetings
- Preview topics for future Advisory Group sessions
- Approach to building Stakeholder consensus through the Advisory Group

IV. Next Meeting and Action Items (15 minutes)
- Key topics for Advisory Group Meeting 2 and Stakeholder “homework”
- Website & QA logistics

DESC IRP Stakeholder Advisory Group Meeting #1

1. Meeting Agenda and Introductions

I. Introductions and Overview

- Welcome
- Introductions of CRA and its role
- Role of the IRP Stakeholder Advisory Group
- Stakeholder Advisory Group feedback process
- Timeline and cadence of future meetings
- Questions and comments about meeting agenda or structure

Welcome to the Stakeholder Advisory Group

Meeting Objectives:

- Engage IRP Stakeholders in a constructive process that addresses key concerns raised throughout the IRP
- Provide transparency into the DESC IRP process
- Set Stakeholder expectations for the process and solicit feedback on the approach
- Ensure Stakeholders have confidence that priority topics will receive due consideration
- Conduct meeting in an orderly manner that allows all Stakeholders to participate
- Build stakeholder consensus (to the extent possible) to DESC IRP process and key actions
- Ensure all Stakeholders understand how to provide feedback and receive responses in a timely manner

CRA and its Role in the Stakeholder Advisory Process

- Charles River Associates has been selected by DESC to support its Stakeholder process
  - The CRA team consists of Jim McMahon, Gary Vicinus, Pat Augustine, and Robert Kaineg

- In supporting DESC, CRA will:
  - Coordinate meetings and meeting materials
  - Act as facilitator for stakeholder group meetings
  - Endeavor to keep meetings on time and on point while building consensus where possible
  - Provide perspectives on industry trends and best practices and assist in the presentation of certain technical materials based upon experience in many jurisdictions
  - Record meeting minutes and report on the stakeholder process
  - Manage the Stakeholder Website and Q/A Process

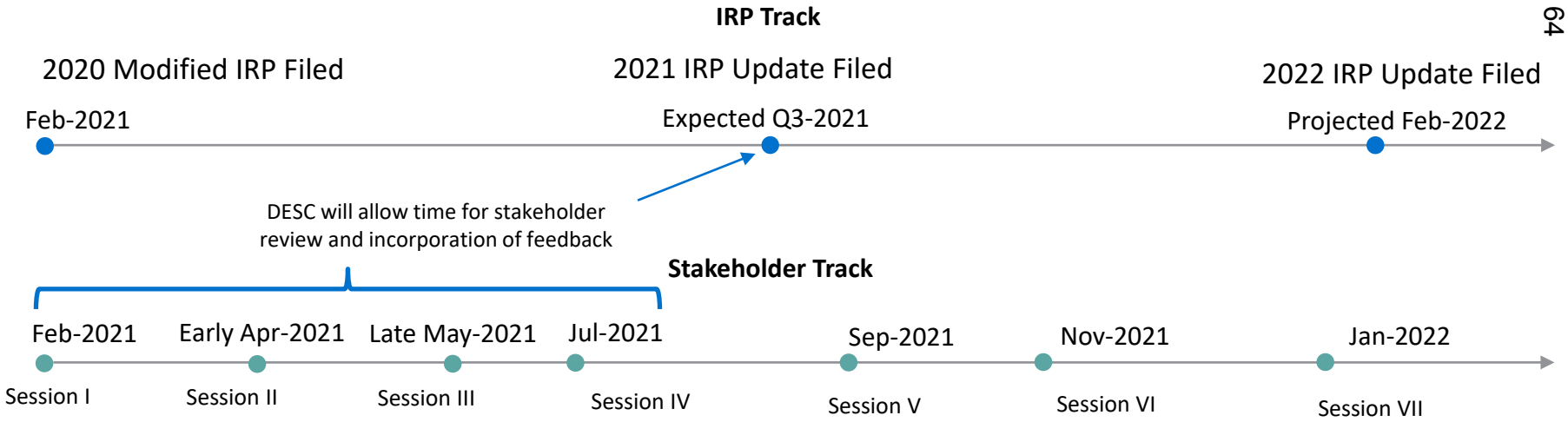
Roles of the IRP Stakeholder Participants

Goal will be to have a well-structured stakeholder process

	DESC	CRA	Advisory Group Members
Process Leadership	Responsible for Overall Process & Reports	Supports DESC and Facilitates Meetings	Attend and participate in all meetings and identify speaking participants (2 max per meeting) Stay on topic
Content Development	Detailed Technical Reports IRP Updates	Process Planning Documents Meeting Minutes Report to PSC	Suggest Agenda Items Identify and Clarify concerns Provide Timely and Constructive Feedback and Comments
Facilitation	Kick Off and Close each Meeting	Manages Meeting and Keeps Group on Schedule Moderate's Q&A	Do homework (come prepared) Provide Questions Confirm Minutes

Timeline and Cadence of Future Meetings

- DESC anticipates meetings every 6-8 weeks are needed to allow sufficient time for feedback and response from Stakeholders on all priority topics in time for anticipated 2021 and 2022 IRP Update schedules. Commission report will be filed twice a year focused on Stakeholder feedback.

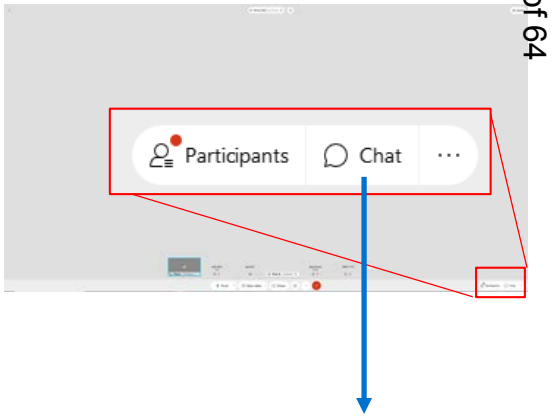


Kick-off Meeting Roles & Rule of Engagement

Session I is more informative than interactive, due to topics covered; future meetings will incorporate additional time for Stakeholder Q&A

- Microphones will be muted during presentations; we will open them when addressing questions at end of each section
- During presentations, questions can be submitted via the chat function
  - Only questions submitted in writing will be answered during live Working Group Sessions
- Each questioner will be allowed one follow-up question before they yield the floor to the next questioner
  - Please don't ask multiple questions in one question
  - If time permits and all questioners are answered, we will come back for additional questions
- All Q&As will be responded to in writing and placed on the web page:
  - https://www.DESC-IRP-Stakeholder-Group.com

Look for the chat function in the bottom right hand corner of the WebEx screen



Please send all live questions via chat to Robert Kaineg

Questions? Please use the Chat function

DESC IRP Stakeholder Advisory Group Meeting #1

II. Updated Summary of 2020 Modified IRP, Model Selection, and DSM Update

II. Updates to 2020 Modified IRP, Model Selection, and DSM

- Results of the DSM Rapid Assessment
- Model selection and Stakeholder Participation
- Review key inputs from the Commission order
- Results and risk assessment
- Questions and Comments

DSM Rapid Assessment Process

- DESC engaged ICF in late November 2020 to conduct a "rapid assessment" to determine if its DSM portfolio could achieve a savings target of 1% of the previous year's retail sales. The initial focus was on the recommendations in Dr. David Hill's Late Filed Exhibit in Docket No. 2020-226-E.
- In December 2020, Order No. 2020-832 required DESC "to conduct a rapid assessment of the cost-effectiveness and achievability of ramping up its current portfolio to achieve at least a 1 % level of savings in the years 2022, 2023, and 2024."
- ICF presented its initial findings to the DESC Energy Efficiency Advisory Group on January 19, 2021. Applying the recommendations from Dr. Hill that were both reasonable and achievable, ICF determined that the portfolio could achieve a savings of 0.73%.
- During and following the meeting, DESC staff gathered additional inputs from the EE advisory group for consideration in the finalization of the rapid assessment.
- Using all inputs (EE Advisory Group, DESC and ICF), ICF concluded that the DESC DSM portfolio could achieve a 1% savings target in 2022, 2023, and 2024.
- Final rapid assessment results will be attached as an appendix to DESC's Modified 2020 IRP.
- To further satisfy Order No. 2020-832, DESC will initiate the process for a comprehensive evaluation (potential study) in Q2 2021.

we are ICF

Dominion Energy South Carolina:
Final High Case Rapid Assessment

February 16, 2021

Topics

- Background and History
- Definitions and Approach
- Programs/Measures Considered and Included in Expansion
- Programs/Measures Considered but Not Included in Expansion
- Final DSM High Case Forecasts

History

Docket 2019-239-E

Docket 2019-184-E

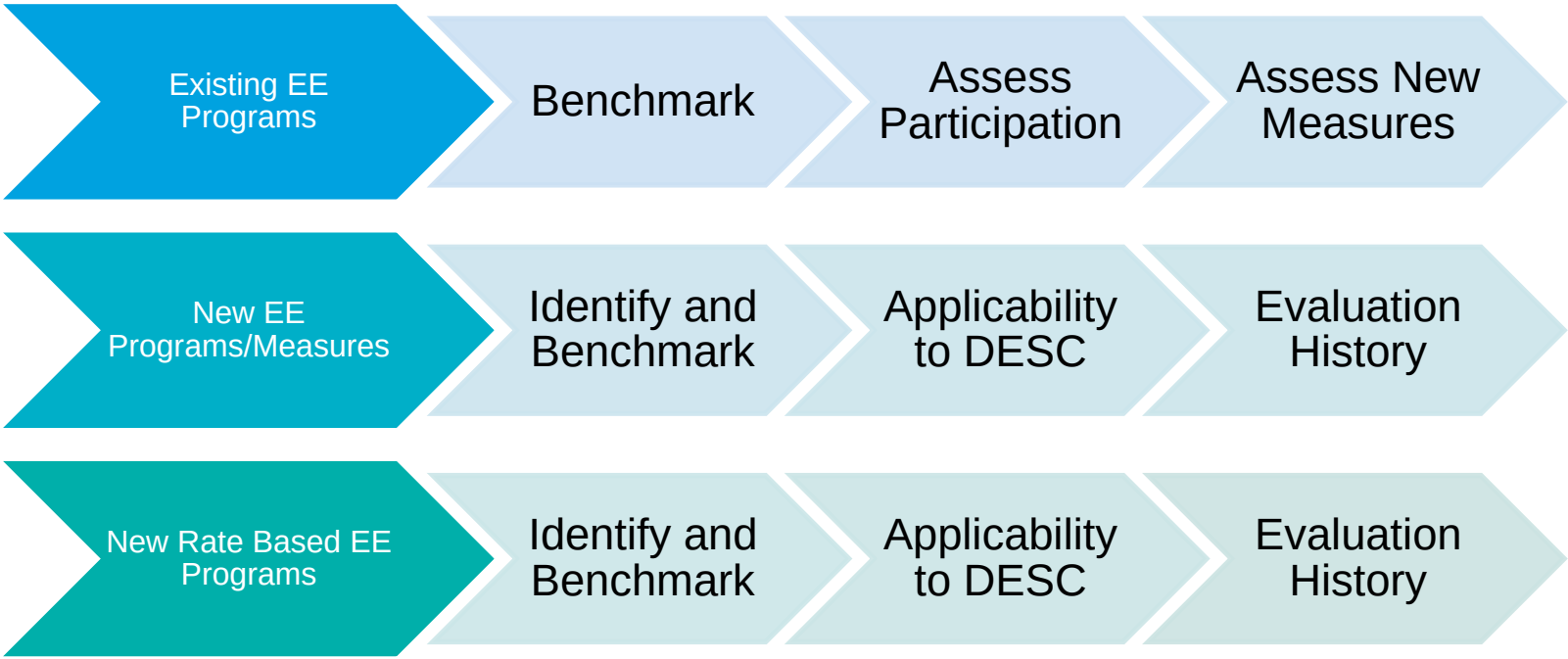
Docket 2019-226-E

Definitions and Approach

Definitions

- **Reasonable:** **Applicable for implementation in the DESC service area**
- **Achievable:** **Quantified based on DESC program experience, outcomes of the 2019 Potential Study (including feedback from market actors), expected industry shifts (including standards), and ability to implement within the 2022, 2023, 2024 time horizon**
- **Total Resource Cost Test (TRC)**
  - Benefits = Avoided Energy Cost * Energy Savings + Avoided Demand Cost * Demand Savings
    - Non-Energy Benefits included: Water, Gas, O&M
    - Net Present Value across the lifetime of the savings and costs
  - Costs = Measure Incremental Costs (net of free riders), Non-Incentive Costs, Incentive Costs Paid to Free Riders
    - Net Present Value across the lifetime of the savings and costs
- **Utility Cost Test (UCT)**
  - Benefits = Avoided Energy Cost * Energy Savings + Avoided Demand Cost * Demand Savings
    - Net Present Value across the lifetime of the savings and costs
  - Costs = Non-Incentive Costs and Incentive Costs
    - Net Present Value across the lifetime of the savings and costs

Rapid Assessment Approach

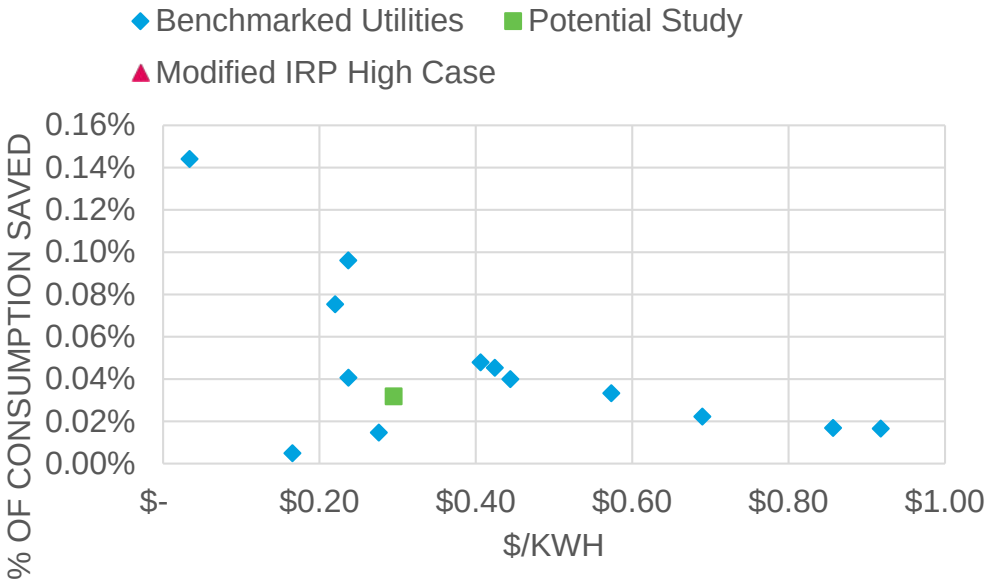


Programs/Measures Considered and Included in Expansion

Appliance Recycling

DESC assessment:

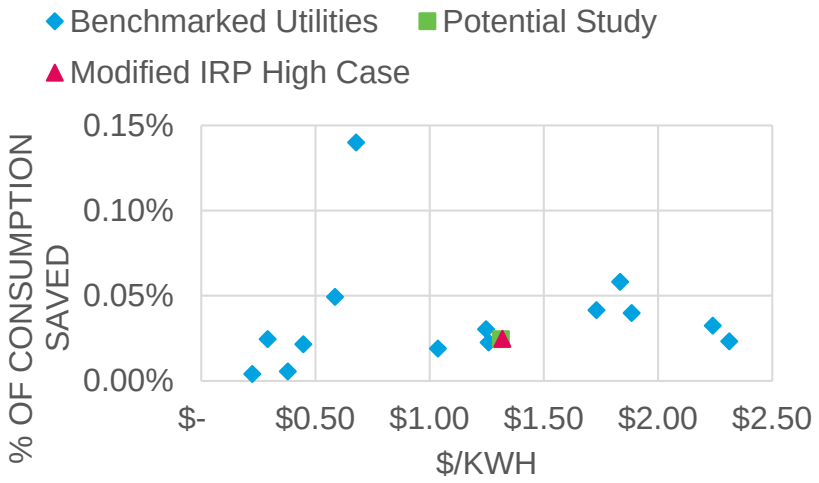
1. Based on updated benchmarking against other programs, there appears to be additional room for growth in participation associated with refrigerator and freezer recycling measures
2. Further, there is opportunity to introduce incentives for dehumidifier and room AC recycling



Residential HVAC

DESC assessment:

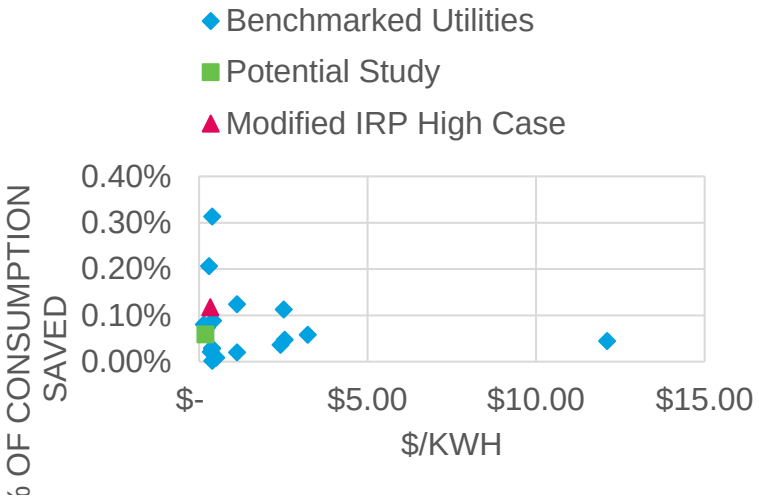
1. Starting December 1, 2020 DESC customers can receive a rebate of $650 for replacement of an electric furnace (heat strips) with an Energy Star heat pump
   a. Anticipate that this offering will be well received by customers and contractors
   b. DESC will monitor the acceptance of this measure to determine if higher participation levels than already forecasted are expected
   c. DESC will not limit participation or cap the number of rebates provided to customers for this offering
2. DESC concluded that the 25% increase in the program was not achievable; however did conclude that a 10% increase in participation for this measure is achievable



Neighborhood Energy Efficiency Program

DESC assessment:

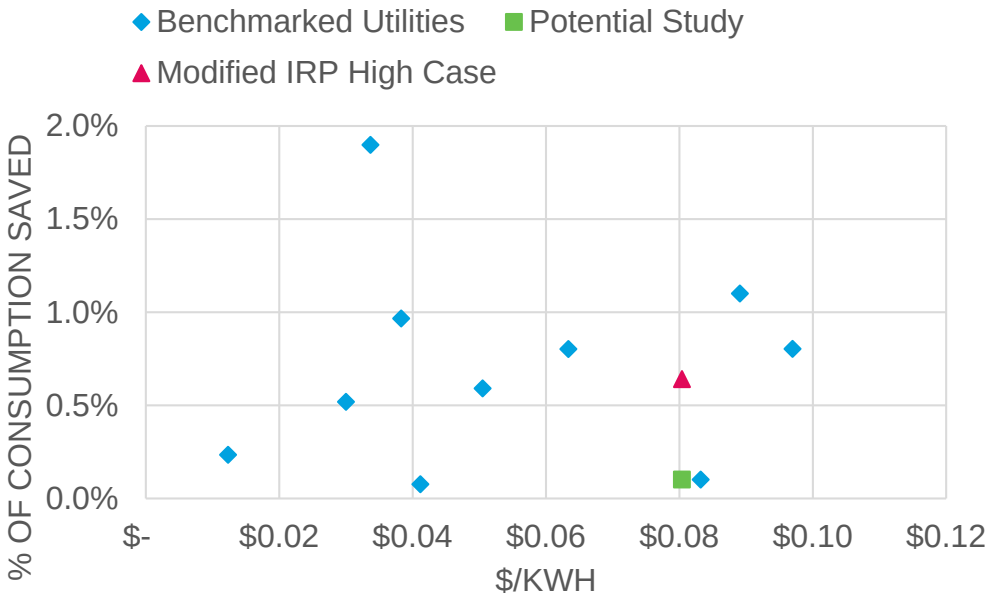
1. In previous years DESC has worked with its third-party implementer to ramp up participation
2. DESC will adopt Dr. Hill's recommendation of doubling participation based on:
   a. Extensive program experience within its service territory
   b. Recently expanded poverty level guidelines
   c. Assurances by third-party implementer of having the ability to hire and train more staff for field work
3. Further, DESC believes there is opportunity to expand their program delivery to directly replace for full cost:
   a. Electric furnaces with heat pumps
   b. Inefficient refrigerators



Home Energy Reports

DESC assessment:

1. DESC has already begun the process of moving to an opt-out model in line with Dr. Hill's recommendation
2. Further, based on program benchmarking there is opportunity for additional participation



Municipal Lighting

DESC assessment:

1. DESC will upgrade/replace all municipal lighting that is available in line with Dr. Hill's recommendation
2. DESC's 2019 Potential Study identified approximately 54,000 units however did not plan to replace all prior to prices for such fixtures declining to a point that is unreasonable for incentivizing
3. DESC has reassessed the market based on this recommendation and found that pursuing all opportunities with this offering is in the best interest of the Company and customers

EnergyWise for Your Business

DESC assessment:

1. DESC currently operates a successful non-residential prescriptive program, despite large customer opt-outs
   a. At the time of the study, non-residential customers accounting for 84% of industrial sales and 5% of commercial sales had opted-out of participating in the programs.
2. DESC participation forecasts increased approximately 30% from the previous program cycle
   a. Including an Agricultural and Strategic Energy Management components
3. DESC has already modified project incentive caps to a “project type” basis as opposed to an annual basis
4. There is opportunity for a focus on “Cool Roof” incentives, currently under custom offerings
   a. Cool Roofs or Reflective Roof Coatings can help reflect heat and sunlight from a buildings roof. This can help reduce energy use in a building.
   b. Note that cost-effectiveness can be difficult for these programs
5. In order to expand the prescriptive offering, DESC assessed a non-residential mid-stream program as part of the potential study activities
   a. Contractor and Distributor feedback indicated this offering was not needed or of interest to these parties

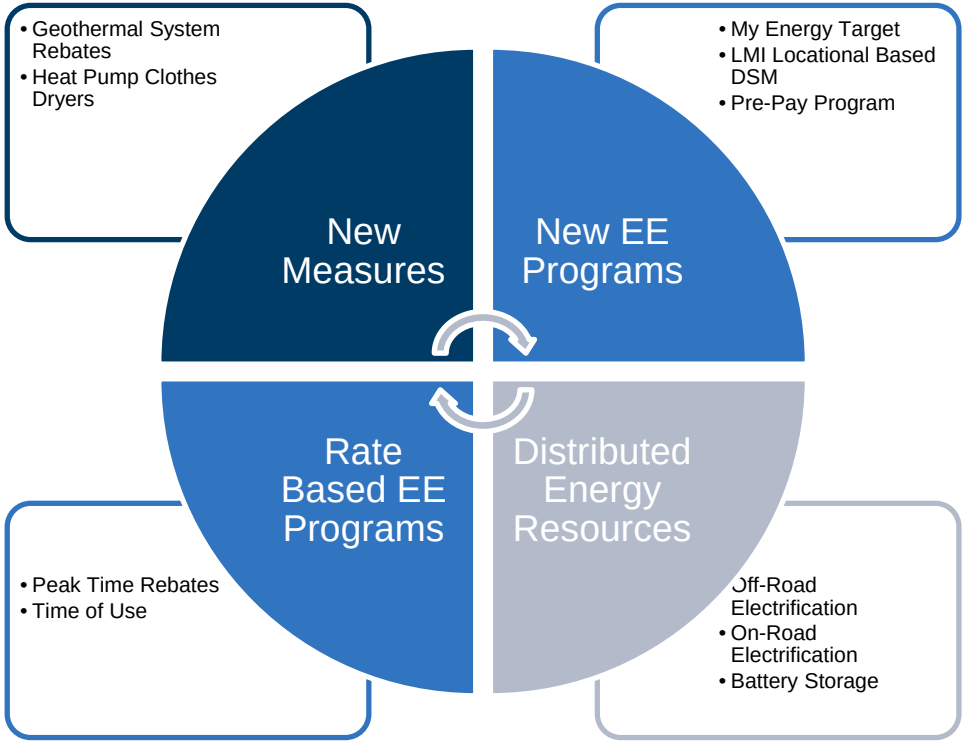
Programs/Measures Considered and Not Included in Expansion

Small Business Direct Install

DESC assessment:

1. As part of the potential study DESC took an aggressive path with promoting the SBDI program (approximately 40% increase in participation in PY11, PY12)
2. DESC Has already implemented several changes to recruit as much participation as possible, including:
   a. Increased customer incentive to 90% of project costs up to $6,000
   b. Exploring additional measure types – including HVAC Tune-ups
   c. Currently exploring removing eligibility restriction to a business that does not maintain more than 6 premises
3. Analysis was not sequestered to only Dr. Hill's recommendation of a 25% increase
   a. All areas for increases were assessed (new measures and increased participation) and no defensible expansion of the program could be concluded upon

New Programs and Measures Assessed



Final DSM High Case Assessment Results

Assessment Conclusions

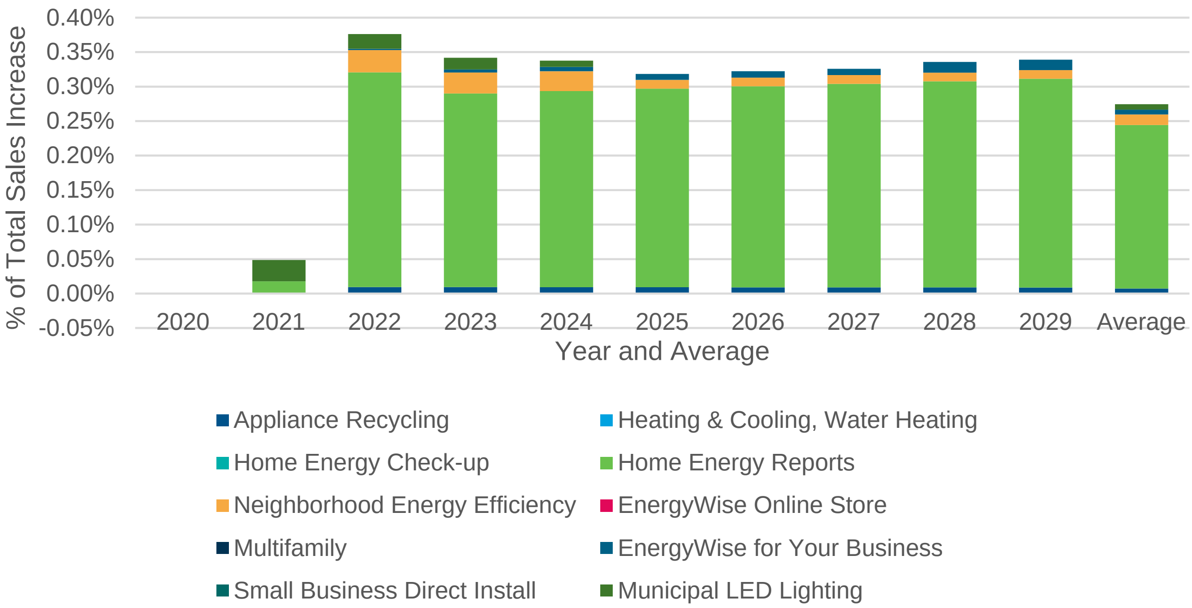
- There is a path for DESC to achieve 1% savings in years 2022, 2023, 2024

MWh Savings	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19
Low	69,901	85,382	96,367	98,209	100,339	93,276	94,327	96,398	98,531	100,833
Medium	77,668	94,869	107,075	109,121	111,488	103,640	104,808	107,109	109,479	112,037
High	77,668	102,621	167,023	163,597	165,290	154,172	156,005	158,876	161,823	164,963

Costs ($ Millions)	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19
Low	$22.42	$27.16	$30.22	$30.32	$30.35	$24.91	$25.36	$25.82	$26.29	$26.61
Medium	$22.42	$27.16	$30.22	$30.32	$30.35	$24.91	$25.36	$25.82	$26.29	$26.61
High	$22.42	$32.32	$41.00	$39.18	$37.92	$30.49	$30.98	$31.45	$31.94	$32.45

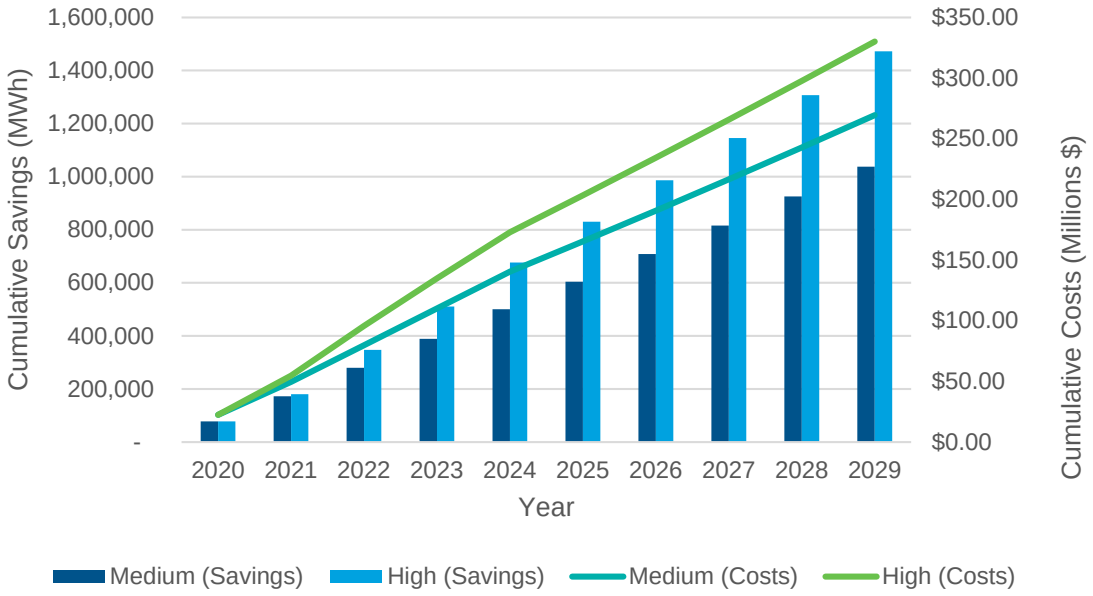
Percent Achievement	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19
Low	0.44%	0.53%	0.60%	0.60%	0.61%	0.57%	0.57%	0.57%	0.58%	0.59%
Medium	0.49%	0.59%	0.66%	0.67%	0.68%	0.63%	0.63%	0.64%	0.65%	0.65%
High	0.49%	0.64%	1.03%	1.01%	1.01%	0.94%	0.94%	0.95%	0.95%	0.96%

Increase in Savings Attribution



Program	Average
Appliance Recycling	0.01%
Heating & Cooling, Water Heating	0.00%
Home Energy Check-up	0.00%
Home Energy Reports	0.24%
Neighborhood Energy Efficiency	0.02%
EnergyWise Online Store	0.00%
Multifamily	0.00%
Residential Portfolio	**0.26%**
EnergyWise for Your Business	0.01%
Small Business Direct Install	0.00%
Municipal LED Lighting	0.01%
C&I Portfolio	**0.01%**
Total Portfolio	**0.27%**

Cumulative Savings and Costs



Program	TRC	UCT	RIM	PCT
Appliance Recycling	0.58	0.63	0.23	4.67
Heating & Cooling, Water Heating	0.72	0.88	0.34	1.78
Home Energy Check-up	1.00	0.84	0.31	2.40
Home Energy Reports	4.98	0.79	0.31	16.12
Neighborhood Energy Efficiency	2.67	1.07	0.26	4.25
EnergyWise Online Store	8.13	4.48	0.31	4.48
Multifamily	2.02	1.60	0.31	4.38
Residential Portfolio	1.64	0.96	0.30	3.58
EnergyWise for Your Business	1.83	2.17	0.44	2.49
Small Business Direct Install	1.85	1.74	0.39	5.44
Municipal LED Lighting	2.38	0.42	0.21	4.50
C&I Portfolio	1.89	1.76	0.41	3.38
Total Portfolio	1.82	1.41	0.37	3.44

Model Selection and Stakeholder Participation

Objectives for Stakeholder Process

- Discuss the criteria for a capacity expansion model as described by the Commission
- Describe PLEXOS and current status of DESC's use of it
- Explain how PLEXOS performs against the criteria
- Facilitate a structured discussion (verbal and written) to fully understand stakeholder positions, educate parties on model solutions, and answer questions
- Provide a comparison of PLEXOS to other commercial options for the relevant criteria
- Provide a summary of issues and solutions to the Commission

Commission Criteria and Stakeholder Concerns

Commission Criteria

- Ability to optimize emission limits
- Capable of optimizing a broad range of retirement dates
- Captures accurate long-term costs of different lives alternatives
- Accepts a non-linear escalation rate and negative escalation rates
- Chronological model instead of using a load duration curve simplification for better renewable and storage modeling
- Storage logic can handle more than once a day charging and discharging as well as long term storage modeling over weeks, seasons
- Ability to tie storage charging to a specific technology
- Ability to accurately model economic reserve shutdowns (start-up cost, min down time, run time)
- Availability of manual to stakeholders
- Provide transparency into modeling; access to software inputs, outputs
- Licenses available at reasonable cost

Stakeholder Concerns

- Interface clunky and not intuitive
- Limitations on modeling of load and representation of time
- Transparency barriers – unclear whether inputs and outputs can be exported
- Licenses prohibitively expensive

Sources: Dec 23 PSC Order, Testimony of witnesses Baron, Sommer, Stenclik and Sercy

DESC's Current Status on Modeling Software

- DESC is down the path of utilizing PLEXOS as its capacity expansion tool
  - DESC seeks to implement a model with flexible emissions constraints that can accurately reflect continually changing environmental requirements at the national, state, and portfolio levels
  - DESC has been working with the model for approximately one year
  - Dominion Virginia has been utilizing PLEXOS for several years and DESC use would allow for synergies in having one tool for the entire system
  - DESC believes that PLEXOS can be configured to meet the Commission and Stakeholder concerns
- DESC is committed to listen and consider other tools to meet the Commission and stakeholder concerns
  - Stakeholders should be aware that switching models at this point will result in lost cost synergies, timing delays and resource challenges.
  - Use of a new tool for the 2022 Update per the Order would be extremely difficult

Overview of PLEXOS for Resource / Capacity Optimization

- Performs least cost capacity expansion meeting defined constraints (e.g. reserve margin, CO_2 emissions, etc.)
- Stable solution that converges in a reasonable length of time. Infeasible solutions encountered infrequently.
- LT capacity expansion typically runs in about 3 hours (highly variable dependent on inputs).
- Two staged solution process used to ensure efficient dispatch (LT module defines mix, then ST module determines production costs and dispatch).
- Verified capability to optimally retire units and replace with efficient mix of resource additions. Run times and other issues can arise when evaluating multiple retirement options at once.
- Can consider demand side options as resources to be evaluated against supply side resources.
- Flexible regarding input escalation rates and inputs.

Review of IRP Model Requirements: Model Capabilities (1/2)

Commission Criteria[1]	Comments:
Ability to optimize emission limits	PLEXOS allows the user to define a variety of emissions constraints and/or use cost profiles.
Capable of optimizing a broad range of retirement dates	PLEXOS optimizes unit retirements on an economic basis, but reliability factors must be studied outside of the model. Control over the active/retirement status of existing and candidate resources is flexible.
Captures accurate long-term costs of different resource plan alternatives	PLEXOS allows optimization of a variety of resource types with very different durations/life spans (DSM, renewables, storage, PPA). The model accurately models production cost and fixed costs.
Accepts a non-linear escalation rate and negative escalation rates	PLEXOS inputs can be fixed, equation-based, or read-in by datafile so negative rates and inflection points can be accurately reflected.

1 – PSC References Criteria developed by DTE in Dec 23 Order, p. 29

Review of IRP Model Requirements: Model Capabilities (2/2)

Commission Criteria[1]	Comments:
Chronological model instead of using a load duration curve simplification for better renewable and storage modeling	DESC uses PLEXOS' chronological solver in every module including Long-Term and is using the hourly and sub-hourly capability in the Short-Term Module.
Storage logic can handle more than once a day charging and discharging as well as long term storage modeling over weeks, seasons	PLEXOS is capable of charging and discharging multiple times a day and also can model LT storage over weeks or even seasons
Ability to tie storage charging to a specific technology	DESC uses a hybrid-pair model in PLEXOS that pairs generation and storage resources and limits charging to the energy generated within the pair. PLEXOS can pair multiple technologies and realize production cost benefits appropriately.
Ability to accurately model economic reserve shutdowns (start-up cost, min down time, run time)	PLEXOS optimizes total system cost while respecting individual constraints and attributes such as start/stop costs, min up/down time, reserve contribution, ramp rates, reserve margin etc.

1 – PSC References Criteria developed by DTE in Dec 23 Order, p. 29

Review of IRP Model Requirements: Transparency

Commission Criteria[1]	Comments:
Availability of manual to stakeholders	PLEXOS users manual is available to licensees.
Transparency needed into modeling; access to software, inputs, and outputs	DESC can provide all PLEXOS inputs and outputs in Excel format. Stakeholders can also get a 6-month license, including PLEXOS training material, and technical support for $8,000.
Licenses available at reasonable cost to Stakeholders	PLEXOS licenses are available to stakeholders at $4,000/license for a six-month period (without training and technical support).

1 – PSC references Criteria developed by DTE in Dec 23 Order, p. 29

Review of IRP Stakeholder Concerns

Transparency and Stakeholder Criteria[1]	Comments:
Interface clunky and not intuitive	Training is available from Energy Exemplar at a fee. PLEXOS' flexibility is an advantage but may result in complex models.
Limitations on modeling of load and representation of time	PLEXOS can solve chronologically at hourly intervals and has sub-hourly capability as well.
Transparency barriers – unclear whether inputs and outputs can be exported	DESC can provide all PLEXOS inputs and outputs in excel format.
Licenses prohibitively expensive	DESC has received a quote from Energy Exemplar for 6-month PLEXOS licenses that includes training materials. Stakeholders will also be able to use the model of their choice based on the Excel inputs and outputs provided by DESC.

1 – Stakeholder concerns, as referenced in the Dec. 23 Commission order

Stakeholder Input to the Model Selection Process

- The following chart will be used to gather stakeholder input into the selection of the appropriate model
  - This will be done in the form of homework to this meeting.
  - Stakeholders will be asked to respond to three questions
    - Are the columns complete in terms of the criteria that should be used to evaluate the model?
    - Are the models listed in the rows complete regarding which options should be assessed
    - Are the interpretations DESC made in assessing PLEXOS correctly addressing stakeholder concerns
  - Stakeholders will have three weeks to provide responses to these questions
  - Then CRA will gather information each of the models and report back to the stakeholder group in subsequent meetings
  - After discussion, DESC will consider stakeholder feedback in selecting the model for future IRPs

Major Resource Planning Software Options

Model	Developer	Model Functionality and Capabilities							Model Transparency / Stakeholder				*Other?*	
		Portfolio Capacity Expansion / Retirement Optimization	*Emission Limit Constraints*	*Chronological Dispatch and Optimization*	*Long-term Cost Accounting and End Effects*	*Advanced Storage Logic – Pairing, Daily/ Seasonal Cycling*	*Operational Constraints – Start Costs, Min up/down Times*	*Flexible, Time-indexed Cost and Growth Escalators*	*Manual Availability*	*Third-party License at Reasonable Cost*	*Easy Access to Input/ Outputs*	*Intuitive User Interface*	*Cost Implications*	*Timing Implications*
PLEXOS	Energy Exemplar													
Aurora	Energy Exemplar													
PowerSIMM	Ascend Analytics													
EGEAS	EPRI													
SERVM	Astrape													
EnCompass	Anchor Power Solutions													
Strategist	ABB													
PROMOD	ABB													
PROSYM / PAR	ABB													
UPLAN	LCG													
WIS:dom-P	Vibrant Clean Energy													
Other?														

Review Key 2020 Modified IRP Inputs from the Commission Order

- New resource plans modeled
  - RP7a – Add Flexible Solar PPA in 2023 vs 2026 at $34, $36, and $38.94/MWh
  - RP7b – Add Flexible Solar PPA and Storage PPA in 2023 vs 2026 at $34, $36, and $38.94/MWh
- Capacity resources added to support a 21% winter and 14% summer reserve margin
- PV Solar counts 11.8% (<973MW) or 4.25% (>973MW) toward the summer and winter Reserve Margin
- Gas Prices - 2020 EIA AEO from March 2020
- Carbon Prices
  - $0/ton
  - $12/ton in 2030 growing at 10%/year (Expected Conditions)
  - $35/ton in 2021 growing at 7.5%/year (AEO High Case Stress Test)
- ITC extended - 26% if online by 1/1/2026
- Large frame ICT Capital Costs increased to $714/kW
- Peaking Turbine Modernization Plan contemplated in 2021 IRP Update

Resource Plan Rankings

- Comparisons will be presented under All Scenarios as well as under Expected Conditions
- The ranking of each resource plan will be calculated against multiple metrics to identify the most reasonable and prudent plan
  - Levelized Cost
  - CO_2 Emissions
  - Clean Energy
  - Fuel Cost Resiliency
  - Generation Diversity
  - Reliability Factors
  - MiniMax Regrets
  - Cost Range Analysis

Questions? Please use the Chat function

DESC IRP Stakeholder Advisory Group Meeting #1

III. Cadence for Future 2021 IRP Update Meetings

III. Topics for Future Stakeholder Meetings

DESC has identified the following key topics that Stakeholders have raised and that this process will address from the Commission Order:

- Transparency of IRP analysis
- Model selection for future IRP work
- Generator retirement analysis
- Analysis of solar PV winter capacity value
- Risk metrics & industry best practices
- CO_2 and Commodity price scenarios
- Candidate resource costs
- Updates to the DSM portfolio and DSM cases

Our intent is to use these meetings to continue to refine and gain consensus by revisiting topics more granularly in each meeting.

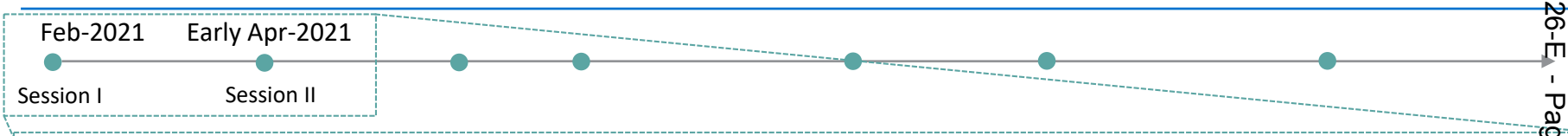
Timeline and Cadence of Future Meetings

- DESC anticipates meetings every 6-8 weeks are needed to allow sufficient time for feedback and response from Stakeholders on all priority topics in time for anticipated 2021 and 2022 IRP Update schedules. Commission report will be filed twice a year focused on Stakeholder feedback.

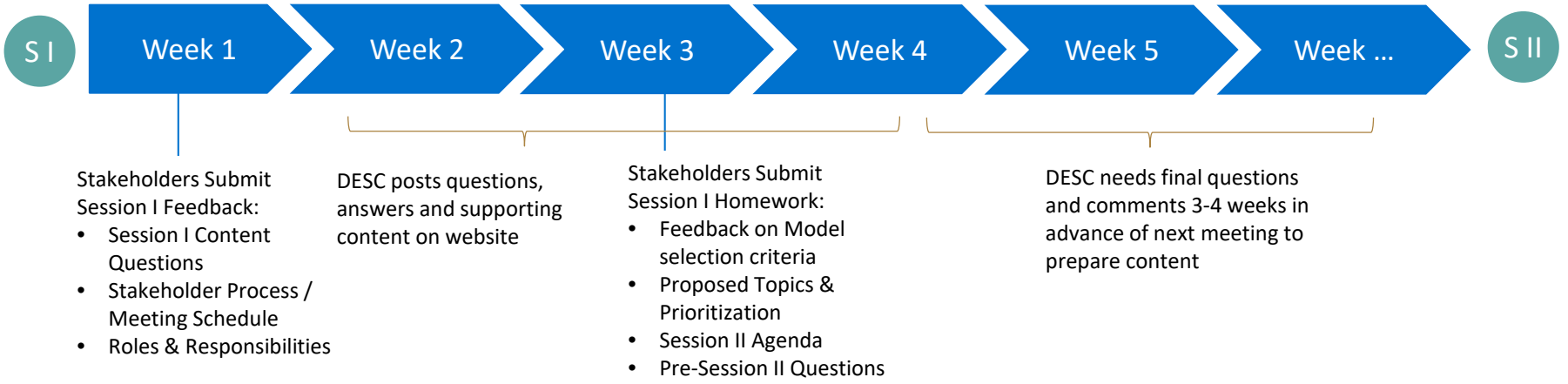
Approach to Building Consensus Through Stakeholder Process

- DESC is soliciting Stakeholder views on all the issues raised in the Commission Order
  - For each issue, DESC will ask Stakeholders to prioritize the time spent in Stakeholder meetings (homework)
  - Then for each issue, CRA will frame the discussion based on its experience and research and provide options to consider
  - Homework will be completed by the Stakeholders to express their views on appropriate options for treatment of the issues
  - CRA will compile the data and present it to the Stakeholder group and DESC will make decisions considering the input from Stakeholders
  - DESC will attempt to gain consensus and will present a justification for its decision on each issue

Stakeholder Feedback & Q&A Cycle Repeats Each Meeting



- DESC intends to be responsive to all relevant Stakeholder questions from Working Group Sessions and submitted via the Stakeholder Website
- Stakeholder questions should be "on-topic" and relate to material covered or proposed to be covered in upcoming Working Group Sessions



What to Expect at Future Meetings

- Future sessions will be more interactive but will follow a similar format.
- There will be more time at the end of each session for Q&A. As in the first meeting, all questions asked will be responded to in a timely manner on our web page. Additional questions may be submitted after the meeting on the web page as well.
  - In **Session II** (in about 6 weeks from Session I) we will address the following issues:
    - Stakeholder Comments on Advisory Group Process and Agenda Items
    - Model Evaluation Matrix (complete matrix)
    - Development of retirement options
    - Treatment of Risks through metrics
    - Addressing the range of key inputs
    - Use of Scenarios and sensitivities
    - Solar PV Capacity Values
    - Selection process for determining preferred portfolios
  - Homework will be to prioritize these issues (Some issues may be pushed to Session III)
  - CRA plans to present options for each of the agenda items from experience/research in other states for Stakeholder input
  - Then we will request comments on the options and recommendations during the Advisory Group sessions and in homework and reflect them in the meeting minutes.
  - In the subsequent meeting and in our semi-annual report, we will evaluate the concerns and provide our perspective on how Stakeholder concerns were addressed in the IRP Updates (2021 and 2022 and the 2023 study)

What to Expect at Future Meetings

In **Session III** (in about 12 weeks from Session I) we will address the following:

- The feedback we received on these issues in Session II and the compilation of data from homework assignments
- Address any agenda items not completed in Session II
- DESC will present how Stakeholder input impacts its proposed approach, inputs, scenarios, sensitivities and selection criteria for the 2021 Update, the 2022 Update and the 2023 IRP
- Presentation of all key metrics and inputs to the 2021 update

In **Session IV** (in about 18 weeks from Session I) we will address the following:

- The feedback we received on these issues and on the presentations made in Session III
- Results of the analysis completed for the August filing
- Discussion of work to be completed for the 2022 Update and the 2023 IRP
- Q&A and Comments on the Draft IRP report and on the Commission Stakeholder report

In this way, Members will have several chances to provide input throughout the process

Questions? Please use the Chat function

DESC IRP Stakeholder Advisory Group Meeting #1

VI. Next Meeting and Action Items

Topics for Session II and Stakeholder Homework

Session II will address model selection in detail (among other topics)

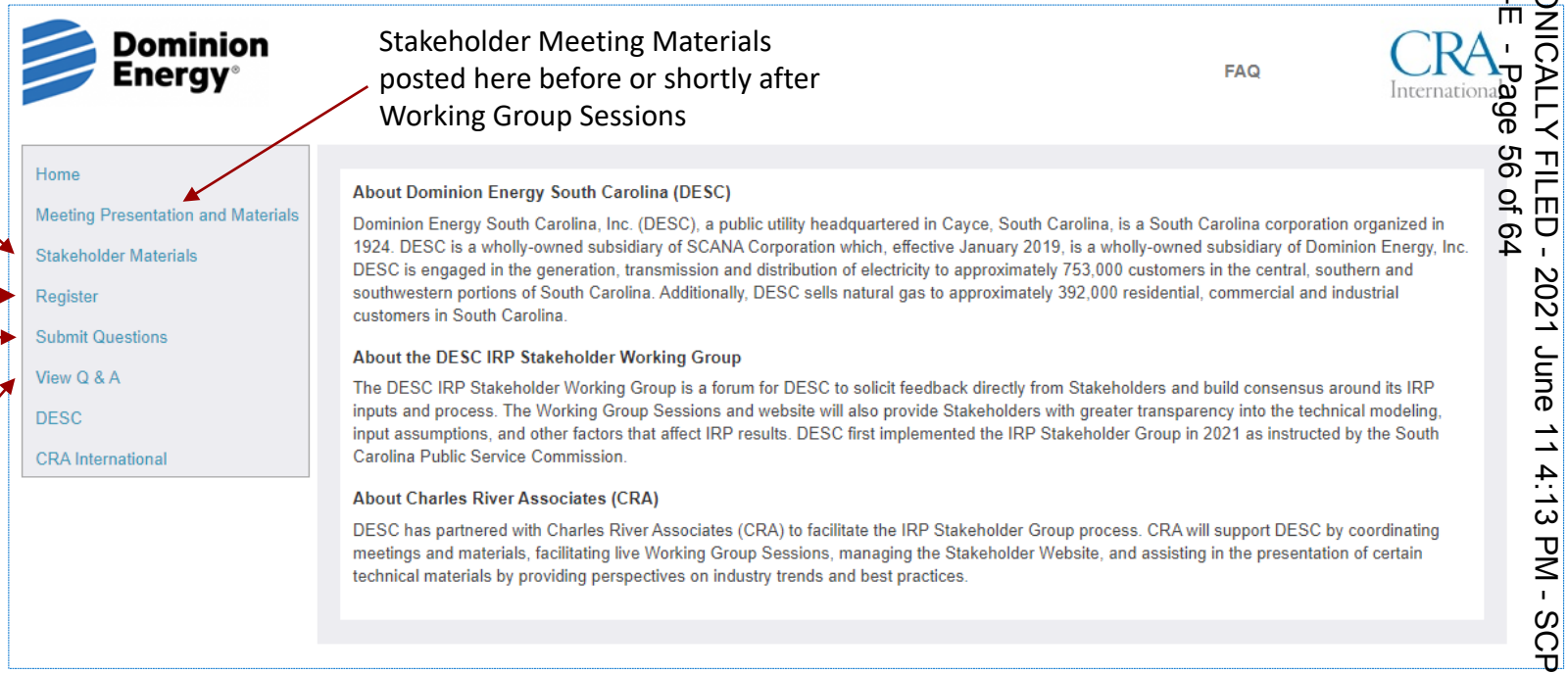
- For the Model Evaluation, please provide the following:
  - Are the columns / factors for evaluation appropriate (are we missing any)?
  - Are the Models to be considered appropriate (are we missing any, should any be dismissed)?
  - In describing how PLEXOS meets the Commission requirements, have we properly characterized the issues?
- Prioritization of Agenda Items for Meeting #2 (please rank the list so we can allocate time properly)
  - Review topics on slide 47 and evaluate as High / Medium / Low Priority
- Identification of any items we are missing for future agendas

Stakeholder Website Overview

Supplemental materials and QA support documents

Registered users can submit on-topic Questions to DESC

Published QA can be viewed by public



https://www.DESC-IRP-Stakeholder-Group.com

Email DESC-IRP-Group@crai.com with questions about the website or if you have content to share with the Stakeholder Group

Questions? Please use the Chat function

Appendix

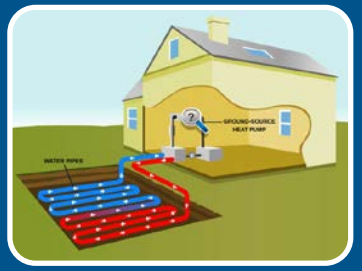
SACE/SCCCL Comments

#	Comment	Rapid Assessment (RA) / Potential Study (PS)
1	Establish clear criteria to define the terms “reasonable” and “achievable” so that their meaning and use can be understood by the Advisory Group	RA
2	DESC should consider what is achievable in the near term as a foundation for longer energy efficiency opportunities	PS
3	Fully consider all of the program implementation parameters that could be modified to enlarge the opportunity to increase participation and savings	RA
4	For each example provided by Dr. Hill, consider the full increment of savings increases that could be achieved, starting with the current savings estimates and going up to Dr. Hill’s illustrative example	RA
5	If DESC and ICF determine that DR. Hill’s illustrative examples are reasonable and achievable, also consider if there are opportunities to increase savings even beyond what Dr. Hill suggested	RA
6	For those programs where DESC already projects increased participation, consider and indicate the depth of market penetration in those programs rather than only the percentage increase that is already expected.	PS
7	Reconsider opportunities to grow participation and savings through midstream market initiates	PS
8	In evaluating an optimal allocation of increased funding, as required by the Order, consider opportunities to increase savings and participation in programs that Dr. Hill did not single out	RA
9	Consider all other viable additional program areas, including expansion of other programs that DESC currently offers and programs offered by other administrators	RA
10	In all cases please document all assumptions and modifications that are considered including which are adopted into the projects and which are rejected, and why	RA
11	Please indicate the size of the market (given approximately 640,000 residential customers) and the annual and cumulative level of market penetration that DESC estimates that it can achieve or influence for the following types of efficient residential measures?:	PS

SACE/SCCCL Comments

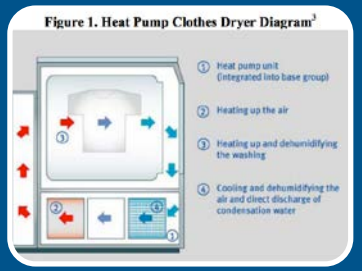
#	Comment	Rapid Assessment (RA) / Potential Study (PS)
12	The 16 SEER AC profiles (two program measures on lines 11 and 12 of the EE Profile spreadsheet) appear to cause substantial negative energy savings (i.e. increased energy usage) during the summer	PS
13	The EE Profile includes solar hot water, which is not a current program offering, but was an offering in an earlier program year.	PS
14	Conversely, the EE Profile does not include many current measures and whole programs. How is in the impact on avoided energy value of the following measures taken into account	PS
15	The majority of EE Profile energy savings appear to come from a single measure: commercial lighting controls	PS
16	How is measure persistence accounted for in the avoided energy calculations? I.e., Home Energy Reports has short (1-year?) persistence, but 16 SEER AC and insulation have long persistence	RA
17	DESC has indicated that the 100 MW EE profile, as referenced on page 4 of the DSM Potential Study Avoided Cost Update, was created by the DESC Resource Planning Group and applied to the ICF model for the avoided energy calculations and used for the purposes of evaluating cost-effectiveness of measures within the DSM portfolio. DESC also has indicated that for the purposes of this calculation and the original DSM Potential Study, a value of $0.0358 per kWh (in 2019 dollars) was used, followed by the application of an 8% average line-loss factor	RA
18	What hour or hours (and in what year or years) are used to calculate the capacity value of the EE portfolio?	PS
19	Please provide a step-by-step example of the following calculations, identifying each input value, and including any supporting workpapers, for the residential measures listed in Appendix A of the *DESC Avoided Cost Update Memo Final* (July 22, 2020):	To Be Provided
20	Please provide the equivalent Appendix D Excel spreadsheet workable Excel format with any formulas intact, reflecting the Avoided Cost update	PS
21	DESC stated that it is currently evaluating other modifications in advance of its February filing; please provide any data or information DESC has available about what modifications it is planning to evaluate	PS
22	A specific program-by-program comparison of the additional savings included in the High Case on Slide 11 as presented on January 19th and the projected savings in Dr. Hill's illustrative example. Additionally please provide a year-by-year breakdown of the savings attributed to each of the six programs in MWh, dollars, and % annual savings, which are shown in aggregate on Slide 11.	RA

New Measures



Geothermal System Rebate

- High Cost (i.e. $20,000)
- Incentive needed is $1,500+/ton
- Savings in the 1,600 kWh range/unit
- Non-cost effective (~0.28)

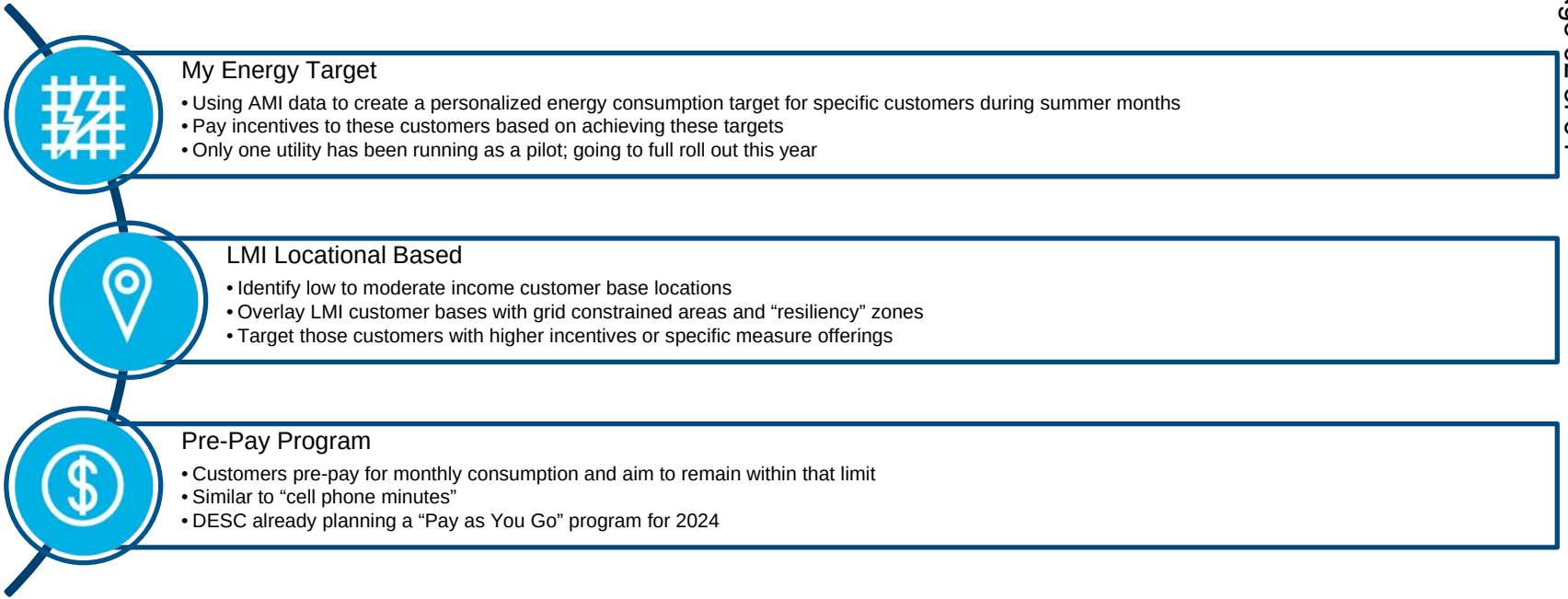


Heat Pump Clothes Dryer

- New and advanced appliance
- Heat pump technology heats air through coil, absorbs moisture from clothes, air across evaporator and moisture removed
- Compact and no venting needed
- Too new and no EM&V results to provide concrete forecasts

Heat Pump Clothes Dryer Image Source: Old House Web; https://www.oldhouseweb.com/blog/advanced-clothes-dryers-use-less-energy/

New Energy Efficiency Programs



My Energy Target

- Using AMI data to create a personalized energy consumption target for specific customers during summer months
- Pay incentives to these customers based on achieving these targets
- Only one utility has been running as a pilot; going to full roll out this year

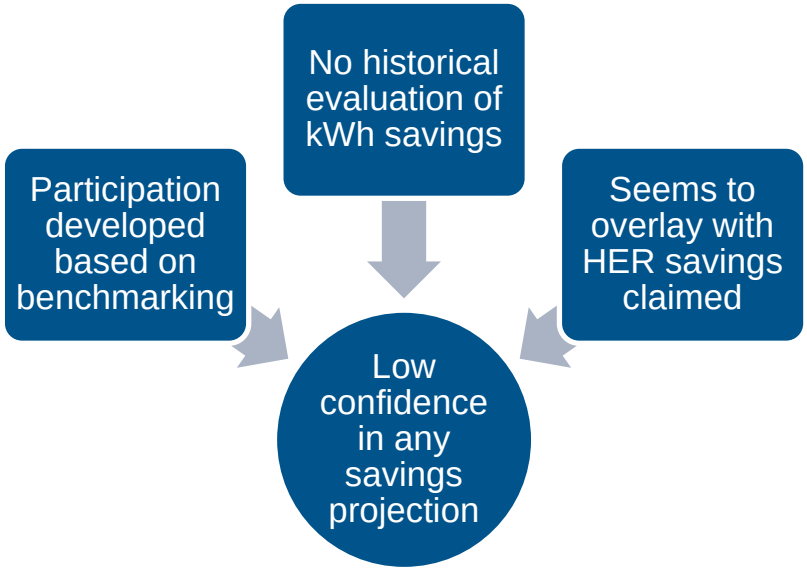
LMI Locational Based

- Identify low to moderate income customer base locations
- Overlay LMI customer bases with grid constrained areas and “resiliency” zones
- Target those customers with higher incentives or specific measure offerings

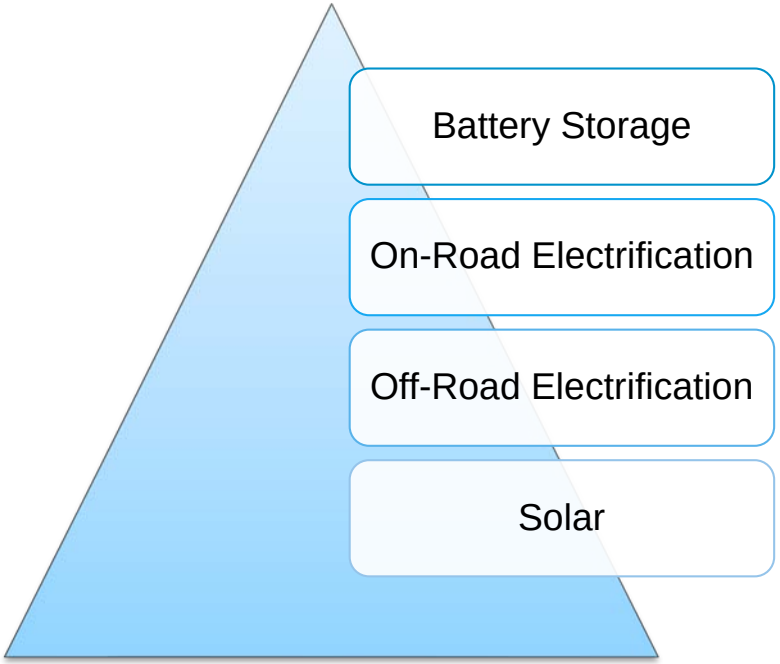
Pre-Pay Program

- Customers pre-pay for monthly consumption and aim to remain within that limit
- Similar to “cell phone minutes”
- DESC already planning a “Pay as You Go” program for 2024

Rate Based Programs – Peak Time Rebates and Time of Use



Distributed Energy Resources



Do not provide consumption “savings” and thus are not appropriate for this analysis